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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/635,347	08/06/2003	Wensheng Zhou	PD-02-1293	8890
22462 7590 07/13/2007 GATES & COOPER LLP HOWARD HUGHES CENTER 6701 CENTER DRIVE WEST, SUITE 1050 LOS ANGELES, CA 90045			EXAMINER WANG, CLAIRE X	
			ART UNIT 2624	PAPER NUMBER
			*MAIL DATE 07/13/2007	DELIVERY MODE PAPER

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

<b>Office Action Summary</b>	<b>Application No.</b> 10/635,347	<b>Applicant(s)</b> ZHOU ET AL.	
	<b>Examiner</b> Claire Wang	<b>Art Unit</b> 2624	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 18 April 2007.
- 2a) ☒ This action is **FINAL**.                      2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1-4, 6-9, 11-14 and 16-19 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-4, 6-9, 11-14, 16-19 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All    b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- |  |   |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892)   | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)                       | 5) <input type="checkbox"/> Notice of Informal Patent Application                       |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)<br>Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____  |

## **DETAILED ACTION**

### ***Response to Amendment***

1. Applicants' response to the last Office Action, filed on April 8<sup>th</sup>, 2007 has been entered and made of record.

### ***Response to Arguments***

2. Applicant's arguments filed April 8<sup>th</sup>, 2007 have been fully considered but they are not persuasive.
  - a. Applicant's argument that (i) Silverstein's image transmission system is not a watermarking system and that (ii) Silverstein does not teach scaling digital data prior to performing a DFT on the scaled digital data, computing a magnitude domain of the DFT and then either embedding a watermark into or extracting a watermark from selected frequency bands of the computed magnitude domain of the DFT; (iii) Also, Silverstein does not properly combine with Ono unless hindsight is used.
  - b. In response to applicant's argument that:
    - i. Silverstein does not teach a watermarking system, it is noted that Examiner is using Silverstein to teach image scaling and not digital watermarking. It is also noted that Ono teaches a technique of embedding digital watermark (see Ono title).

ii. Silverstein does not teach scaling digital data prior to performing a DFT on the scaled digital data, computing a magnitude domain of the DFT and then either embedding a watermark into or extracting a watermark from selected frequency bands of the computed magnitude domain of the DFT. It is noted that Ono teaches a system for embedding and detecting watermarks not limited by image size (Ono Col. 1, lines 7-9). Silverstein teaches a system adapted to display an image on a display area ([0025], lines 7-8) and thus it is obvious that Silverstein's system may be used to scale an image to a standard size in order to be displayed on a standard display.

iii. In response to applicant's argument that the examiner's conclusion of obviousness is based upon improper hindsight reasoning, it must be recognized that any judgment on obviousness is in a sense necessarily a reconstruction based upon hindsight reasoning. But so long as it takes into account only knowledge which was within the level of ordinary skill at the time the claimed invention was made, and does not include knowledge gleaned only from the applicant's disclosure, such a reconstruction is proper. See *In re McLaughlin*, 443 F.2d 1392, 170 USPQ 209 (CCPA 1971). As can be seen from the rejection, it has taken in to account only knowledge which was within the level of ordinary skill, i.e. knowledge from the patents themselves.

***Claim Rejections - 35 USC § 103***

2. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

3. Claims 1, 3-4, 6, 8-9, 11, 13-14, 16 and 18-19 are rejected under 35 U.S.C. 103(a) as being unpatentable over Ono (US 7,123,741 B2) in view of Silverstein et al. (US 2003/0077002 A1 hereinafter "Silverstein").

As to claim 1, Ono teaches a method of embedding a watermark in digital data (process of embedding digital watermark; Col. 12, line 37), comprising, performing a Discrete Fourier Transform (DFT) on the digital data (applying DFT over the whole image, Col. 12, lines 58-67); computing a magnitude (amplitude) domain of the Discrete Fourier Transform (DFT is may be expressed using an amplitude component and a phase component; Col. 13, lines 17-21); embedding the watermark into selected frequency bands (the intermediate frequency domain is a target embedding area; Col. 2, lines 38-39) of the computed magnitude domain of the Discrete Fourier Transform, thereby creating a watermarked magnitude domain (Ono discloses that his invention embeds the watermark into the amplitude component and not the phase component; Col. 13, lines 45-51); and performing an inverse Discrete Fourier Transform on the watermarked magnitude domain to reconstruct the digital data with the embedded

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watermark (the embedded watermark information is subjected to an inverse discrete Fourier transformation; Col. 14, lines 25-32).

Ono does not teach scaling the digital data to a standard size before computing the magnitude domain. Silverstein teaches scaling a larger image to a smaller image when transmitting from one display to another (Paragraph [0025]). Thus Silverstein's image scaling technique reads on the claimed scaling of digital data. Therefore, it would have been obvious to one ordinarily skilled in the art at the time of the invention to have combined the DFT watermarking system of Ono with the scaling method of Silverstein in order to provide the user with a readable image on a screen (Silverstein [0025]).

As to claim 6, it is the same as claim 1. The only difference between the two is that claim 6 is an apparatus whereas claim 1 is a method. Therefore, claim 6 is analyzed in the same way as claim 1. Please see above for details.

As to claim 11, Ono teaches a method of detecting a watermark in digital data (process of detecting digital watermark; Col. 15, line 46), comprising, performing a Discrete Fourier Transform (DFT) on the digital data (applying DFT over the whole image; Col. 15, lines 57-59); computing a magnitude domain of the Discrete Fourier Transform (uses the same method as the embedding process where only the amplitude components are used; Col. 15, lines 64-67); and extracting the watermark from selected

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frequency bands of the computed magnitude domain of the Discrete Fourier Transform (watermark is then extracted from the computed amplitude domain; Col. 16, lines 1-20).

As to claim 16, it is the same as claim 11. The only difference between the two is that claim 16 is an apparatus whereas claim 11 is a method. Therefore, claim 6 is analyzed in the same way as claim 11. Please see above for details.

As to claim 3, Ono teaches wherein the selected frequency bands comprise one or more middle frequency bands (the intermediate frequency domain is a target embedding area; Col. 4, lines 10-11).

As to claim 4, Ono teaches wherein the middle frequency bands comprise a band of circular rings of the magnitude domain (Fig. 4 shows circular ring frequency distribution of an amplitude component obtained after a DFT, where the intermediate frequency is clearly shown).

As to claims 8 and 9 it is the same as claims 3 and 4. The only difference between the two is that claims 8 and 9 are apparatuses whereas claims 3 and 4 are methods. Therefore, claims 8 and 9 are analyzed in the same way as claims 3 and 4. Please see above for details.

As to claim 13, Ono teaches wherein the selected frequency bands comprise one or more middle frequency bands (the intermediate frequency domain is a target embedding area; Col. 4, lines 10-11).

As to claim 14, Ono teaches wherein the middle frequency bands comprise a band of circular rings of the magnitude domain (Fig. 4 shows circular ring frequency distribution of an amplitude component obtained after a DFT, where the intermediate frequency is clearly shown).

As to claims 18 and 19 it is the same as claims 13 and 14. The only difference between the two is that claims 18 and 19 are apparatuses whereas claims 13 and 14 are methods. Therefore, claims 18 and 19 are analyzed in the same way as claims 13 and 14. Please see above for details.

4. Claims 2, 7, 12 and 17 are rejected under 35 U.S.C. 103(a) as being unpatentable over Ono in view of Silverstein, further in view of Reed et al. (US 6,590,996 B1) (hereinafter "Reed").

As to claim 2, Ono teaches converting RGB space to CMYK then embeds the watermark information after a DFT. However, Ono and Silverstein do not teach extracting a Y component of a Y, U(Cb), V(Cr) digital data stream representing color components of digital video as the digital data. Reed teaches that depending on the



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needs of the application the embedder may insert a watermark signal into either YUV or RGB (Col. 4, line 11-20). This clearly demonstrates that Ono's watermark embedding system may use YUV space instead of the RGB space to embed watermarks. Thus Reed's interchangeable color space reads on the claimed Y, or chrominance component. Therefore, it would have been obvious to one ordinarily skilled in the art at the time of the invention to have combined the DFT watermarking system of Ono with the use of YUV space of Reed in order to make the invention more versatile (Reed Col. 4, lines 10-20).

As to claim 7, it is the same as claim 2. The only difference between the two is that claim 7 is an apparatus whereas claim 2 is a method. Therefore, claim 7 is analyzed in the same way as claim 2. Please see above for details.

As to claims 12 and 17, they are the same as claims 2 and 7. Therefore they are analyzed in the same way as claims 2 and 7. Please see above for detail analysis.

**Contact Information**

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Claire Wang whose telephone number is 571-270-1051. The examiner can normally be reached on Mid-day flex.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Samir Ahmed can be reached on 571-272-7413. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

Claire Wang  
07/05/2007



SAMIR AHMED  
PRIMARY EXAMINER